CLAIMS

1. (currently amended) A method for making a ferrous metal alloy foil which has a high oxidation resistance and high dimension stability in an automotive exhaust gas atmosphere comprising the steps of:

a) providing a first layer of a first metal material;

b) sandwiching the first layer ~~of the first material~~ between at least two ~~first and second~~ layers of ~~one or more second~~ metal material(~~s~~) ~~which is different from the first material thereby producing~~to produce a sandwiched composite;

c) ~~compaction~~ compacting ~~rolling~~ the sandwiched composite to a finished thickness metal composite foil;

d) processing the finished thickness metal composite foil ~~into~~ a honeycomb-like structure having channels for air flow;

e) heating ~~placing~~ the honeycomb-like structure ~~into a furnace which has been preheated to~~ near or at an annealing temperature~~,~~ in an air atmosphere~~, and heating at an annealing temperature~~ for a period of time ~~which is sufficient~~ to cause diffusion of the first layer and the at least two layers ~~said one or more second metal materials into said first metal materials~~ to produce a monolithic honeycomb-like annealed alloy foil structure; and

f) cooling ~~the furnace and~~ the monolithic honeycomb-like annealed alloy foil structure to room temperature;

wherein the ~~one or more of the~~ first metal material or the second metal material(~~s~~) contains iron.

2. (currently amended) The method of claim 1, wherein the first metal material comprises ~~Fe~~ iron and ~~Cr~~chromium.

3. (currently amended) The method of claim 2, wherein the Cr content is about 16 wt % to about 24 wt %.

4. (previously presented) The method of claim 1, wherein the first metal material is selected from stainless steel 430, 434 and 446.

5. (previously presented) The method of claim 2, wherein the second metal material comprises aluminum.

6. (previously presented) The method of claim 5, wherein the aluminum is essentially pure aluminum or an aluminum alloy.

7. (currently amended) The method of claim 1, wherein the first metal material ~~if~~ is FeCr and the second method material is aluminum~~Al~~.

8. (currently amended) The method of claim 7, wherein ~~the furnace is preheated to an annealing temperature and~~ the annealing temperature is from about 900° C to about 1,200° C.

9. (currently amended) The method of claim 8, wherein the period of time for ~~annealing~~ heating is between about 10 minutes and about 120 minutes.

10. (currently amended) The method of claim 9, wherein a monolithic FeCrAl alloy is formed, ~~further wherein~~ and a pre-oxidized surface is formed.

11. (currently amended) The method of claim 10, wherein the pre-oxidized surface comprises ~~Al-oxide~~aluminum oxide.

12. (previously presented) The method of claim 7, wherein the preheated temperature is about 720° C.

13. (currently amended) The method of claim 12 ~~further~~, wherein ~~the furnace is heated to an~~the annealing temperature ~~of~~ is between about 900° C and 1,200° C ~~within about 30 minutes after the honeycomb-like structure is placed in the furnace;~~ and the honeycomb-like structure is heated for about 2 hours at the annealing temperature.

14. (currently amended) The method of claim 13, wherein a monolithic FeCr--Al alloy is formed, ~~further wherein~~ and a pre-oxidized surface is formed thereon.

15. (currently amended) The method of claim ~~14~~10, wherein the pre-oxidized surface comprises Al-oxide.

16. (withdrawn) A product produced in accordance with the process of claim 1.

17. (withdrawn) A product produced in accordance with the process of claim 11.

18. (withdrawn) A product produced in accordance with the process of claim 15.

19. (withdrawn) A catalytic converter comprising a product produced according to the process of claim 11.

20. (cancelled).

21. (currently amended) A process of making a ferrous metal substrate catalytic converter comprising the steps of:

a) providing a first layer of a first material selected from the group consisting of chromium containing ferrous metals or aluminum containing materials;

b) sandwiching said first layer ~~of said first material~~ between a first and second layer of a second material selected from the group consisting of chromium containing ferrous metals or aluminum containing materials not chosen for the first material thereby producing a sandwiched composite;

c) compaction rolling the sandwiched composite to a finished thickness metal foil;

d) processing the finished thickness metal composite foil with a flat foil into a honeycomb-like structure having channels for air flow;

e) ~~placing the~~heating the honeycomb-like structure ~~into a furnace which has been preheated to~~ near or at an annealing temperature~~,~~ in an air atmosphere~~, and heating~~ at an annealing temperature for a period of time ~~which is sufficient~~ to cause diffusion of said one or more second metal materials into said first metal materials to produce a monolithic honeycomb-like annealed alloy foil structure; and

f) cooling the furnace and the monolithic honeycomb-like annealed alloy foil structure to room temperature; wherein the structure ~~cooled product of step f)~~ has a pre-oxidized surface comprising ~~Al oxide~~aluminum oxide.

22. (currently amended) The process of claim 21, wherein the first material is FeCr and the second material is pure ~~Al~~aluminum oxide.

23. (cancelled)

24. (withdrawn) A catalytic converter comprising a product produced by the process of claim 21.

25. (new) A method for making a ferrous metal alloy foil which has a high oxidation resistance and high dimension stability in an automotive exhaust gas atmosphere comprising the steps of:

a) sandwiching a first layer of the first material between two layer of a second material to produce a multilayer composite;

b) compaction rolling the sandwiched composite to a finished foil;

c) processing the foil with a flat foil into a honeycomb-like structure having channels for air flow;

d) heating the honeycomb-like structure in an air atmosphere at an annealing temperature so to produce a monolithic honeycomb-like annealed alloy foil structure with a pre-oxidized surface; and

f) cooling the structure to room temperature;

wherein the first metal material or the second metal material contains iron.

26. (new) The method as claimed in Claim 25, wherein the step d) is only step necessary for producing the structure.